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MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER	
COUGHLAN, PETER D	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/725,378	FAN ET AL.	
	Examiner	Art Unit	
	PETER COUGHLAN	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/15/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1. This office action is in response to an AMENDMENT entered February 1, 2008 for the patent application 10/725378 filed on December 3, 2003.

2. All previous Office Actions are fully incorporated into this Final Office Action by reference.

3. Examiner's Comments. In the previous Office Action dated 11/8/2007, the Examiner requested how the article 'Progressive Modeling' was delineated among the five authors. This request was ignored by applicant's representative.

Status of Claims

4. Claims 1-33 are pending.

35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-33 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The claims and specification recite preemption of applications for the invention. Gottschalk v. Benson, 409 U.S. 63, 64 (1972); see also Flook, 437 U.S. at 593 ("[R]espondent incorrectly assumes that if a process application implements a principle in some specific fashion, it automatically falls within the patentable subject matter of 101."). "Abstract ideas" are one type of subject mater that the Supreme Court has consistently held fall beyond the broad reaches of patentable subject matter under §101. As early as Le Roy v. Tatham, 55 U.S. 156 (1852), the Supreme Court explained that "[a] principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them exclusive right." Id. At 175. Since then the unpatentable nature of abstract ideas has repeatedly been confirmed. See, e.g., Diehr, 450 U.S. at 67; Rubber Tip Pencil Co. v. Howard, 87 U.S. 498, 507 (1874). The very cases of this court that recognized the patentability of some business methods have reaffirmed that abstract ideas are not patentable. See AT&T, 172 F.3d at 1355; State Street Bank, 149 F.3d 1373; see also In re Alappat, 33 F.3d 1526, 1542-43 (Fed. Cir. 1994) (en banc).

Paragraph 0006 of the application illustrate the invention is an abstract concept due to its many applications both known and unknown uses. Paragraph 0213 discloses numerous areas in which the invention can be employed thus indicating the invention falls within the domain of being an abstract concept. In addition paragraph 0213 recites both known and unknown applications thus the specification confirms preemption. In paragraph 0215, the specification affirms both the invention is an abstract concept and

preemption. 'One of ordinary skill in the art, after having read the present application, would readily recognize that this commercial aspect could be implemented in a variety of ways.' The ability of the invention 'could be implemented in a variety of ways' indicates the invention falls within the domain of an abstract concept. The phrase 'variety of ways' illustrates preemption.

Claims and/or the specification that describe an abstract concept or preemption of implementations of the invention are nonstatutory.

Claims 14-19 are rejected under 35 U.S.C. §101 by use of the term 'signal bearing media.' In ¶0206, the specification defines signal bearing media as 'including transmission media such as digital and analog communications.' Transmission media such as digital and analog communications are unable to store instructions and are nonstatutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 12-33 are rejected under 35 U.S.C. 102(b) (hereinafter referred to as **Chan**) being anticipated by Chan, 'Distributed Data Mining in Credit Card Fraud Detection.'

Claim 1

Chan teaches dividing said dataset into a plurality of subsets of data (**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.) ; and developing an estimated learning model for said dataset by developing a learning model for a first subset of said plurality of subsets, said estimated learning model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 2

Chan anticipates progressively forming an ensemble model of said dataset by sequentially developing a learning model for each of a successive one of said plurality of subsets (**Chan,** p68, C1:9 through C3:10; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan.), until a desired indication of termination has been reached. (**Chan,** p70, C2:6-30; 'Indication of termination' of applicant is disclosed by the 'overhead threshold' of Chan. The concept of 'overhead

threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen.)

Claim 3

Chan anticipates developing at least one of a current accuracy and an estimated final accuracy, said current accuracy comprising an accuracy of said learning model for said first subset, said estimated final accuracy comprising an estimated accuracy of said estimated learning model for said dataset. (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan.)

Claim 4

Chan anticipates developing at least one of a current accuracy and an estimated final accuracy, said current accuracy comprising an accuracy of said learning model for said subset being currently developed, said estimated final accuracy comprising an estimated accuracy of said ensemble model of said dataset. (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan.)

Claim 5

Chan anticipates developing an estimated training time to complete development of said ensemble model. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan.)

Claim 6

Chan anticipates each said example in said dataset carries a benefit and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits. (**Chan,** p67 C2:1 through C3:7, p68, C1:9 through C3:10; 'Dataset carries a benefit' of applicant is disclosed by the detection of 'fraud' of Chan. 'Overall accuracy' of applicant is disclosed by the results of 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan)

Claim 7

Chan anticipates said benefit is not equal for all said examples, said learning comprising a cost-sensitive learning, and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits in units of money. (**Chan,** p67 C3:8 through p68, C1:8; 'Benefit is not equal for all said examples' of applicant is illustrated by the 'data are highly skewed' of Chan.)

Claim 8

Chan teaches a database divider for dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and a base classifier calculator for developing a learning model for data in a first subset of said N subsets. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 9

Chan anticipates an ensemble calculator for progressively developing an ensemble model of said database of examples by successively integrating a base classifier from successive subsets of said N subsets. (**Chan,** p68, C1:9 through C3:10; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan.)

Claim 12

Chan teaches providing a database of example data to be used to process an inductive learning model for said example data, wherein said inductive learning model is derivable by dividing said example data into N segments (**Chan,** p68, C1:9 through C3:10; 'N segments' of applicant is equivalent to 'subsets' of Chan.); and using at least one of said N segments of example data to derive a base classifier model, said base classifier model thereby providing an estimated model for said dataset that is obtainable

without processing an entirety of said dataset (**Chan,** p68, C1:9 through C3:10, p67 C1:10-22; 'Base classifier model' of applicant is equivalent to 'base classifiers' of Chan. 'Without processing an entirety of said dataset' of applicant is disclosed by 'scalable techniques' and 'scalability' of Chan.); receiving said database of example data (**Chan,** p70 C3:33-53; One example of 'example data' of applicant is equivalent to 'training set' of Chan.) and executing said method of deriving said inductive learning model (**Chan,** p70, C2:40 through C3:8; A step in 'executing said method of deriving said inductive learning model' is the creation of 'data subsets' of Chan.) providing an inductive learning model as derived (**Chan,** p70 C2:32 through C3:8; 'Providing an inductive learning model' of applicant is the actual division of the dataset 'into four data subsets' of Chan. This is based on the applicants ¶0002 'inductive model is built both "accurately" and "efficiently" by dividing a database of examples into N disjoint subsets of data, and a learning model (base classifier.'); executing an application of an inductive learning model as derived (**Chan,** p70 C3:21-32; 'Executing an application' of applicant is disclosed by 'apply a learning algorithm or algorithms to each subset' of Chan.); and receiving a result of said executing said application. (**Chan,** p68 C1:9 through C3:10; 'Receiving a result' of applicant is disclosed by 'combining their results' of Chan.)

Claim 13

Chan teaches dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and developing an estimated learning model for said dataset by developing a learning model

for a first subset of said N subsets, said estimated learning model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 14

Chan teaches dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and developing an estimated learning model for said dataset by developing a learning model for a first subset of said N subsets, said estimated learning model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 15

Chan anticipates progressively forming an ensemble model of said dataset by sequentially developing a learning model for each of a successive one of said N subsets, until a desired indication of termination has been reached. (**Chan,** p68, C1:9 through C3:10; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan.)

Claim 16

Chan anticipates developing at least one of a current accuracy and an estimated final accuracy, said current accuracy comprising an accuracy of said learning model for said subset being currently developed, said estimated final accuracy comprising an estimated accuracy of said ensemble model of said dataset. (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan.)

Claim 17

Chan anticipates developing an estimated training time to complete development of said ensemble model. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan.)

Claim 18

Chan teaches wherein each said example in said dataset carries a benefit and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits. (**Chan,** p67 C2:1 through C3:7, p68, C1:9 through C3:10; 'Dataset carries a benefit' of applicant is disclosed by the detection of 'fraud' of Chan. 'Overall accuracy' of applicant is disclosed by the results of 'combine the resultant base

models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan)

Claim 19

Chan anticipates said benefit is not equal for all said examples, said learning comprising a cost-sensitive learning, and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits in predetermined units. (**Chan,** p67 C3:8 through p68, C1:8; 'Benefit is not equal for all said examples' of applicant is illustrated by the 'data are highly skewed' of Chan.)

Claim 20

Chan teaches dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and developing an estimated learning model for said dataset by developing a learning model for a first subset of said N subsets. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 21

Chan anticipates calculating an estimated accuracy for said leaning model. (**Chan,** p68 'The AdaCost algorithm' window, C2:8-21; 'Calculating an estimated

accuracy' of applicant is equivalent to using the 'Laplace estimate' to find a rule set accuracy of Chan.)

Claim 22

Chan anticipates calculating a remaining training time. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan. So if two months are needed and 1.5 months have been processed, the remaining .5 month is equivalent to 'calculating remaining training time' of Chan.)

Claim 23

Chan anticipates progressively, and stepwise, forming an ensemble model of said dataset by sequentially using additional said subsets to develop an additional learning model for said subset and incorporating each said additional learning model into an aggregate model to form said ensemble model, wherein said progressive and stepwise forming can be terminated prior to developing an additional learning model for all of said N subsets. (**Chan,** p70, C3:33-53, p70, C2:6-30; 'Stepwise forming an ensemble model' of applicant is equivalent to 'class-combiner (or stacking) strategy' of Chan. 'Terminated prior to developing an additional learning model for all of said N subsets' is illustrated by the concept of 'overhead threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen.)

Claim 24

Chan anticipates said examples carry potentially different benefits, said method further comprising: calculating an estimation of an accumulated benefit for said learning model. (**Chan,** p67 C3:8 through p68 C1:8; 'Potentially different benefits' of applicant is disclosed by each transaction has different dollar amount, thus 'different benefits' of applicant maps to the 'different dollar amount' with possible fraud implications.)

Claim 25

Chan teaches for a dataset comprising a plurality of elements (**Chan,** p68 C1:9 through C3:10; 'Dataset' of applicant is equivalent to 'large data set' of Chan.), each said element comprising a feature vector (**Chan,** p68, 'The AdaCost algorithm' window; 'Feature vector' of applicant is illustrated by the '(x_1, c_1, y_1) of training examples' of Chan.), said dataset further comprising a true class label for at least a portion of said plurality of elements, said true class labels allowing said dataset to be characterized as having a plurality of classes, dividing at least a part of said portion of said plurality of elements having said true class label into N segments of elements (**Chan,** table 1; 'True class label' of applicant is equivalent to 'true positive' of Chan.); and learning a model for elements in at least one of said N segments, as an estimate for a model for all of said dataset, said estimated learning model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning a model' of applicant is equivalent to the generation of a 'best base classifier' of Chan.)

Claim 26

Chan anticipates using a second part of said portion of said plurality of elements having said true class label as a validation set for said model. (**Chan,** table 1 and p70, C2:32 through C3:20; Chan discloses randomly dividing a skewed distribution into a resulting 50:50 distribution. It is inherent that using only 'true positive' is the only indicator of validation due to the fact the remaining choices are not positive indicators.)

Claim 27

Chan anticipates using said validation set to calculate a predicted accuracy for said model. (**Chan,** p68 'The AdaCost algorithm' window, C2:8-21; 'Calculating an estimated accuracy' of applicant is equivalent to using the 'Laplace estimate' to find a rule set accuracy of Chan. It is inherent that a 'validation set' is used to 'predict accuracy.')

Claim 28

Chan anticipates calculating an estimated training time for learning a model based on a remainder of said N segments. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan. What ever has not been completed, a difference between the values results in the 'estimated training time.')

Claim 29

Chan anticipates establishing a benefit matrix associated with said plurality of classes, said benefit matrix defining a benefit for each said element in said dataset as applicable for each said class. (**Chan,** p71, table 2)

Claim 30

Chan teaches anticipates using a validation dataset to measure a validation of said model (**Chan,** p70, C3:33-53; 'Validation dataset' of applicant is equivalent to validation set' of Chan. It is inherent that a validation dataset is used for validation purposes.); and calculating an aggregate benefit for said model, as based on said validation dataset. (**Chan,** p70, C3:33-53; 'Aggregate benefit' of applicant is the result of the outcome of the 'class combiner (or stacking)' of Chan.)

Claim 31

Chan anticipates progressively developing an ensemble model by successively learning a model for elements in one of a remaining said N segments, wherein said progressively developing said ensemble model is terminable at any stage. (**Chan,** p70, C3:33-53, C2:6-30; 'Developing an ensemble model' of applicant is equivalent to the 'class combiner (or stacking)' of Chan. 'Termination at any stage' of applicant is disclosed by the 'overhead threshold' of Chan. The concept of 'overhead threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen.)

Claim 32

Chan anticipates calculating at least one of an accuracy (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan. The Examiner is unsure what 'accuracy' the applicant is describing.) and a remaining training time for said ensemble model. (**Chan,** p71, C1:1-18; 'Remaining training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan.)

Claim 33

Chan anticipates entering a threshold for at least one of said accuracy and said remaining training time; and automatically terminating said progressively developing said ensemble model whenever said threshold is exceeded. (**Chan,** p70, C2:6-30; 'Threshold' of applicant is disclosed by the 'overhead threshold' of Chan. The concept of 'overhead threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen. This illustrates 'automatically terminating' of applicant.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan as set forth above, in view of Stolfo. ('JAM: Java Agents for Meta-Learning over distributed Databases', referred to as **Stolfo**)

Claim 10

Chan teaches anticipates a memory interface to retrieve data from said database and to store data as said inductive learning model is progressively developed. (**Chan,** p70, C3:33-53; If Chan can produce a classifier based on a training set and then test the classifier based on a validation set, then a 'memory interface' is inherent to perform these function using 'training set' and 'validation set' of Chan.)

Chan does not teach a graphic user interface to allow a user to selectively enter parameters, to control the progressive development of said ensemble model, and to view results of said progressive development.

Stolfo teaches a graphic user interface to allow a user to selectively enter parameters, to control the progressive development of said ensemble model, and to view results of said progressive development. (**Stolfo,** p2, C2:12; 'Graphic user interface' of applicant is equivalent to 'graphic user interface' of Stolfo.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Chan by implementing a GUI as taught by Stolfo to have a graphic user interface to allow a user to selectively enter parameters, to control the progressive development of said ensemble model, and to view results of said progressive development.

For the purpose of avoiding altering computer code for changing parameters within the invention.

Claim 11

Chan teaches a memory containing one or more of a plurality of segments of said example data, wherein each said segment of example data comprises data for calculating a base classifier for an ensemble model of said dataset(**Chan,** p68, C1:9 through C3:10; 'Plurality of segments' of applicant is equivalent to 'subsets' of Chan.); a base classifier calculator for developing a learning model for data in one of said N segments(**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best

base classifier' of Chan. 'One of said N segments' of applicant is equivalent to 'over one subset' of Chan.); an ensemble calculator for progressively developing an ensemble model of said database of examples by successively integrating a base classifier from successive ones of said N segments (**Chan,** p68, C1:9 through C3:10, p70, C3:33-53, p70, C2:6-30; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan. 'Successive ones of said N segments' of applicant is disclosed by 'class-combiner (or stacking) strategy' of Chan.) a memory interface to retrieve data from said database and to store data as said inductive learning model is progressively developed. (**Chan,** p70, C3:33-53; If Chan can produce a classifier based on a training set and then test the classifier based on a validation set, then a 'memory interface' is inherent to perform these function using 'training set' and 'validation set' of Chan.)

Chan does not teach a graphic user interface to allow a user to at least one of enter parameters, to control the progressive development of said ensemble model, and at least one of display and printout results of said progressive development.

Stolfo teaches a graphic user interface to allow a user to at least one of enter parameters, to control the progressive development of said ensemble model, and at least one of display and printout results of said progressive development. (**Stolfo,** p2, C2:12; 'Graphic user interface' of applicant is equivalent to 'graphic user interface' of Stolfo.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Chan by implementing a GUI as taught by Stolfo to have a graphic user interface to allow a user to at least one of enter

parameters, to control the progressive development of said ensemble model, and at least one of display and printout results of said progressive development.

For the purpose of ease of implementation for the user.

Response to Arguments

6. Applicant's arguments filed on February 1, 2008 for claims 1-33 have been fully considered but are not persuasive.

7. In reference to the Applicant's argument:

THE 35 USC §101 REJECTION

Claims 1-33 stand rejected under 35 USC § 101 as allegedly directed to non-statutory subject matter.

As best can be deciphered in the revised rejection in paragraph 5, beginning on page 2 of the Office Action, the Examiner rejects the present invention under 35 USC § 101 for two reasons:

1. The invention is an "abstract idea" and/or "preemption of applications"; and

2. The "signal bearing media" terminology used in claim 14-19 renders these claims non-statutory because the specification refers to signal bearing media as including transmission media such as digital and analog communications.

The Abstract Idea/Preemption Rationale
As best can be deciphered, the Examiner considers that the "... claims and specification recite preemption of applications for the invention" because "[p]aragraph 0006 of the

application illustrate[s] the invention is an abstract concept due to its many applications [having] both known and unknown uses. Paragraph 0213 discloses numerous areas in which the invention can be employed thus indicating the invention falls within the domain of being an abstract concept. In addition paragraph 0213 recites both known and unknown applications thus the specification confirms preemption. In paragraph 0215, the specification affirms both the invention is an abstract concept and preemption. 'One of ordinary skill in the art, after having read the present application, would readily recognize that this commercial aspect could be implemented in a variety of ways.' The ability of the invention 'could be implemented in a variety of ways' indicates the invention falls within the domain of an abstract concept. The phrase 'variety of ways' illustrates preemption."

In response, Applicants respectfully submit that the present invention is not an abstract idea or an idea in the abstract and that there is no case holding that even defines "abstract idea", let alone defining it in the manner described above by the Examiner.

Relative to the aspect of overbreadth, Applicants point out that overbreadth is a function of the prior art, not abstractness.

The issue of statutory subject matter requires only that the Applicants can point to at least one practical application, not that Applicants limit the invention to specific applications, as the Examiner seems to think. The present invention can be used in any electronic database having the information content allowing the types of calculations described in the specification. That is the only application of the present invention and that application is even clearly described in the independent claims.

Relative to the Examiner's concern that abstraction is due to the wording in the specification that the commercial aspect could be implemented in a variety of ways, Applicants respectfully submit that this statement has nothing to do with whether the claimed invention is an abstract idea.

Relative to preemption, Applicants note that every patent claim inherently preempts something and that such preemption is the whole purpose of a patent claim. Merely describing a variety of ways to implement a method is not a basis for preemption and Applicants are aware of no case holding that so states, and the Examiner does not provide any citation.

It is noted that "preemption" relative to claimed inventions is usually considered as an issue if the invention could be reasonably considered as preempting a mathematical algorithm, as the holding in Benson held was legally true for the register shifting technique of converting between binary/BCD (even though any electronic engineer would explain that are, in fact, other ways to perform this conversion).

Regardless of whether one considers that the US Supreme Court was misled by the

USPTO on that case, such issue of preemption is clearly not present in the case of the present invention, since, for whatever underlying mathematics might be described in the claims, the method of the independent claims clearly describes that this mathematics is claimed in a narrow practical application of that mathematics. Thus, there is no mathematical algorithm being claimed in the present application, and preemption is not an issue, not even in the sense of the holding of Benson.

It is further noted that method claims may indeed be directed to any and all possible applications, "both known and unknown", as the Examiner quite quaintly phrases it. That aspect is strictly a function of the method involved. In the present invention, however, the method claims on12~ the narrow application of "processing an inductive learning model for a dataset of examples". Therefore, there is no attempt to claim any other application of the method steps, contrary to the Examiner's characterization.

The independent claims describe a process wherein a model is estimated for the entire dataset by developing a model for a subset of the data. This shortening of the normal model development process allows the user to determine, within a short time and at much less cost than conventional methods, whether it is desirable to spend the time and effort to develop a model for the entire dataset.

If the estimated accuracy is acceptable, the use of dataset can proceed without the extensive testing of conventional methods. This reduction in time and expense clearly provides a practical result and the method is clearly applied as a very limited application.

Examiner's response:

Paragraph 0006 illustrates numerous practical applications. The phrase 'among many others' within this paragraph leans towards numerous other applications. The Examiner sees no clear division where this application can and cannot be used. The specification discloses no situation wherein the invention cannot be used. The applicant's arguments illustrate no problem in which the invention cannot be used. Applicant concedes a mathematical algorithm can be seen as preemption. One argument of the Examiner is taking a dataset, and dividing the dataset into subsets and then making a learning model of a subset is an algorithm. Applicant states the

invention has known and unknown uses. The applicant states the claims with a wide domain such that the invention has multiple uses and purposes. Office Action stands.

8. In reference to the Applicant's argument:

The "Signal Bearing Media" Issue

On the top of page 4 of the Office Action, the Examiner writes:

"Claim 14-19 are rejected under 35 U.S.C. §101 by use of the term 'signal bearing media.' In f[0206, the specification defines signal bearing media as 'including transmission media such as digital and analog communications.' Transmission media such as digital and analog communications are unable to store instructions."

In response, Applicants simply do not get the point of this rejection. If one of ordinary skill in the art would agree with the Examiner that "... digital and analog communications are unable to store instructions", then these transmission media are, according to the Examiner, simply not covered by these claims and the specification description is alleged by the Examiner as being incorrect.

However, this allegation is not an issue of statutory subject matter. It is, at most, an issue of interpretation for a court as to whether a transmission media is covered by "signal-beating medium tangibly embodying a program of machine-readable instructions executable by a digital
processing apparatus to perform a method of ...."

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Examiner's response:

Claims 14-19 use the term 'signal bearing medium.' Paragraph 0054 recites 'signal bearing medium' as 'storage medium.' Paragraph 0206 recites 'data storage media' such as 'digital and analog communication links and wireless. The Examiner

equates 'signal bearing medium' equivalent to 'signal bearing media.' If this is incorrect and the applicant's position these are two separate items, then a possible objection to the specification might arise. Office Action stands.

9. In reference to the Applicant's argument:

The Examiner alleges that Applicants' own publication dated December, 2002, anticipates the present invention.

In response, Applicants first submit that the IEEE publication in December, 2002, relates to a conference in Japan, held on December 9-12, as indicated by the attachment conference announcement. Therefore, to the extend that the Examiner relies upon this document, it has to be considered as effective on December 9, 2002, and would be disqualified as a prior art reference against the present invention because the December 3, 2003, filing date of the present application precedes the one-year protection period for using an inventor's own publication against himself.

Filed concurrently is a Rule 132 Declaration that formally declares that this publication is not by another, thereby disqualifying this publication by clarifying the issue of inventorship, as raised by the Examiner.

Second, Applicants submit that the present invention also includes aspects beyond those presented in the December 9-12 conference. Therefore, even if this document were qualified as a prior art reference, Applicant submits that there are elements of the claimed invention that are not taught or suggest by this earlier publication.

Therefore, the Examiner is respectfully requested to withdraw this rejection.

Examiner's response:

The Examiner acknowledges the declaration under 37 C.F.R. §1.132 in which all three inventors state that Prof. Lo (11 years affiliation with Columbia University) and Prof. Stolfo (25 years affiliation with Columbia University) did not contribute to the actual

conception or reduction to practice of the claimed invention, in that their names were added to the IEEE publication 'progressive modeling' only for academic courtesy. The Examiner removes this reference.

Examination Considerations

9. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, l 45-48; p 2100-9, c 1, l 1-4). The Examiner has the full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

10. Examiner's Notes are provided to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and sprit of compact prosecution. However, and

unless otherwise stated, the Examiner's Notes are not prior art but link to prior art that one of ordinary skill in the art would find inherently appropriate.

11. Examiner's Opinion: Paragraphs 9 and 10 apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Claims 1-33 are rejected.

Correspondence Information

14. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3080. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 272-3150 (for formal communications intended for entry.)

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/P. C./

Examiner, Art Unit 2129

Peter Coughlan

4/29/2008

/David R Vincent/

Supervisory Patent Examiner, Art Unit 2129